



POLICY ANALYSIS  
FOR THE  
PUBLIC AND PRIVATE  
SECTORS

5358 MILES AVENUE  
OAKLAND, CA 94618  
PH: 510-547-4369  
Fx: 510-547-3002  
MITCHELL@MCUBED-ECON.COM

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**Date:**

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**From:**

David Mitchell

**To:**

Ken Jenkins

**Re:**

Hawthorne District SBx7-7 Targets and Baseline Demand Projection

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**Historical Per Capita Water Use**

Hawthorne District's historical per capita water use for the years 1996-2010 is summarized in Table 1. It is calculated by dividing annual water delivery net of recycled water by service area population and expressing the result in gallons per day. Over the period examined, daily per capita water use ranged between 77.4 gallons (2010) and 103.2 gallons (1997 and 2000).

**Table 1. Hawthorne District Historical Per Capita Water Use**

Year	Total Delivered (AF)	Less Recycled Water (AF)	Adjusted Delivered (AF)	Service Area Population	Service Area GPCD
1996	4,177	(61)	4,116	42,784	85.9
1997	5,056	(80)	4,976	43,065	103.2
1998	4,889	(90)	4,799	42,980	99.7
1999	4,929	(87)	4,842	42,957	100.6
2000	5,075	(95)	4,980	43,088	103.2
2001	5,003	(106)	4,897	46,217	94.6
2002	5,118	(123)	4,995	46,175	96.6
2003	4,909	(93)	4,817	45,147	95.2
2004	5,113	(113)	5,000	46,175	96.7
2005	5,034	(119)	4,915	46,190	95.0
2006	4,783	(118)	4,665	46,174	90.2
2007	4,843	(100)	4,743	46,199	91.7
2008	4,685	(103)	4,583	46,175	88.6
2009	4,385	(98)	4,287	47,857	80.0
2010	4,230	(84)	4,146	47,807	77.4

**Base Daily Per Capita Water Use**

Hawthorne District's 10-Year and 5-Year base daily per capita water uses are summarized in Table 2. The period 1997-2006 has the maximum 10-year base daily water use. The period 2003-2007 has the maximum 5-year base daily water use. Therefore, these periods should be used for SBx7-7 target calculations. Note that because base daily per capita water use in both

periods is less than 100 gpcd, the requirement that the 2020 target cannot exceed 95% of the 5-year base daily per capita water use does not apply.

**Table 2. Hawthorne District Base Daily Per Capita Water Use**

10-Yr Base Daily Per Capita Use	GPCD
1996 - 2005	97.1
1997 - 2006	97.5
1998 - 2007	96.3
1999 - 2008	95.2
2000 - 2009	93.2
2001 - 2010	90.6
<b>Maximum 10-Yr Base Daily Use: 1997 - 2006</b>	<b>97.5</b>
5-Year Base Daily Per Capita Use	GPCD
2003 - 2007	93.8
2004 - 2008	92.4
2005 - 2009	89.1
2006 - 2010	85.6
<b>Maximum 5-Yr Base Daily Use: 2003 - 2007</b>	<b>93.8</b>

### **SBx7-7 Method 1 Target**

Under Method 1, the 2020 target is equal to 80% of the 10-year base daily per capita water use. This is equal to 78.0 gpcd. The 2015 target is equal to the mid-point between the 10-year base daily per capita water use and the 2020 target. This is equal to 87.7 gpcd.

### **SBx7-7 Method 2 Target**

The landscape area measurement data needed to calculate the targets under Method 2 is not available. Therefore, targets under Method 2 are not provided.

### **SBx7-7 Method 3 Target**

Under Method 3, the 2020 target is equal to 95% of the South Coast Hydrologic Region 2020 Target. The South Coast Hydrologic Region 2020 Target is equal to 149 gpcd. Therefore, Hawthorne District's 2020 target under Method 3 is 141.6 gpcd. The 2015 target is equal to 95% of the South Coast Hydrologic Region Interim Target. The South Coast Hydrologic Region Interim Target is 165 gpcd. Therefore, Hawthorne District's 2015 target under Method 3 is 156.7 gpcd.

### **SBx7-7 Method 4 Target**

Under the provisional Method 4, the 2020 target is calculated using DWR's *Provisional Method 4 Target Calculator*. Hawthorne District's 2020 target under provisional Method 4 is 78.2 gpcd.<sup>1</sup> The 2015 target is equal to the mid-point between the 10-year base daily per capita water use and the 2020 target. This is equal to 87.8 gpcd.

### **Selection of SBx7-7 Target Method**

Non-compliance with SBx7-7 in 2015 and 2020 is minimized by selecting the targets calculated using Method 3. The 2015 and 2020 targets for the three methods are summarized in Table 3.

**Table 3. Hawthorne District SBx7-7 Target Selection**

Target Method	2015 Target (gpcd)	2020 Target (gpcd)
Method 1	87.7	78.0
Method 2	N/A	N/A
Method 3	156.7	141.6
Method 4	87.8	78.2
<b>Selected Target: Method 3</b>	<b>156.7</b>	<b>141.6</b>

### **Hawthorne District Baseline Per Capita Daily Water Use through 2020**

Table 4 shows unadjusted and adjusted baseline per capita daily water use for Hawthorne District through 2020. Unadjusted baseline per capita daily water use is equal to the average per capita water use for the period 2005-2009. Adjusted baseline per capita daily water use deducts from this average the expected water savings from plumbing codes for residential toilets and showerheads and commercial toilets.<sup>2</sup> Figure 1 compares the unadjusted and adjusted baseline per capita water use for Hawthorne District to its 2015 and 2020 SBx7-7 targets.

### **Hawthorne District Baseline Demand through 2020**

Table 5 shows unadjusted and adjusted baseline demand in acre-feet for Hawthorne District through 2020. Figure 2 compares the unadjusted and adjusted baseline demand for Hawthorne District to its 2015 and 2020 SBx7-7 targets re-expressed in acre-feet.

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<sup>1</sup> Attachment 1 reproduces the input and output worksheets from the *Provisional Method 4 Target Calculator* for Hawthorne District.

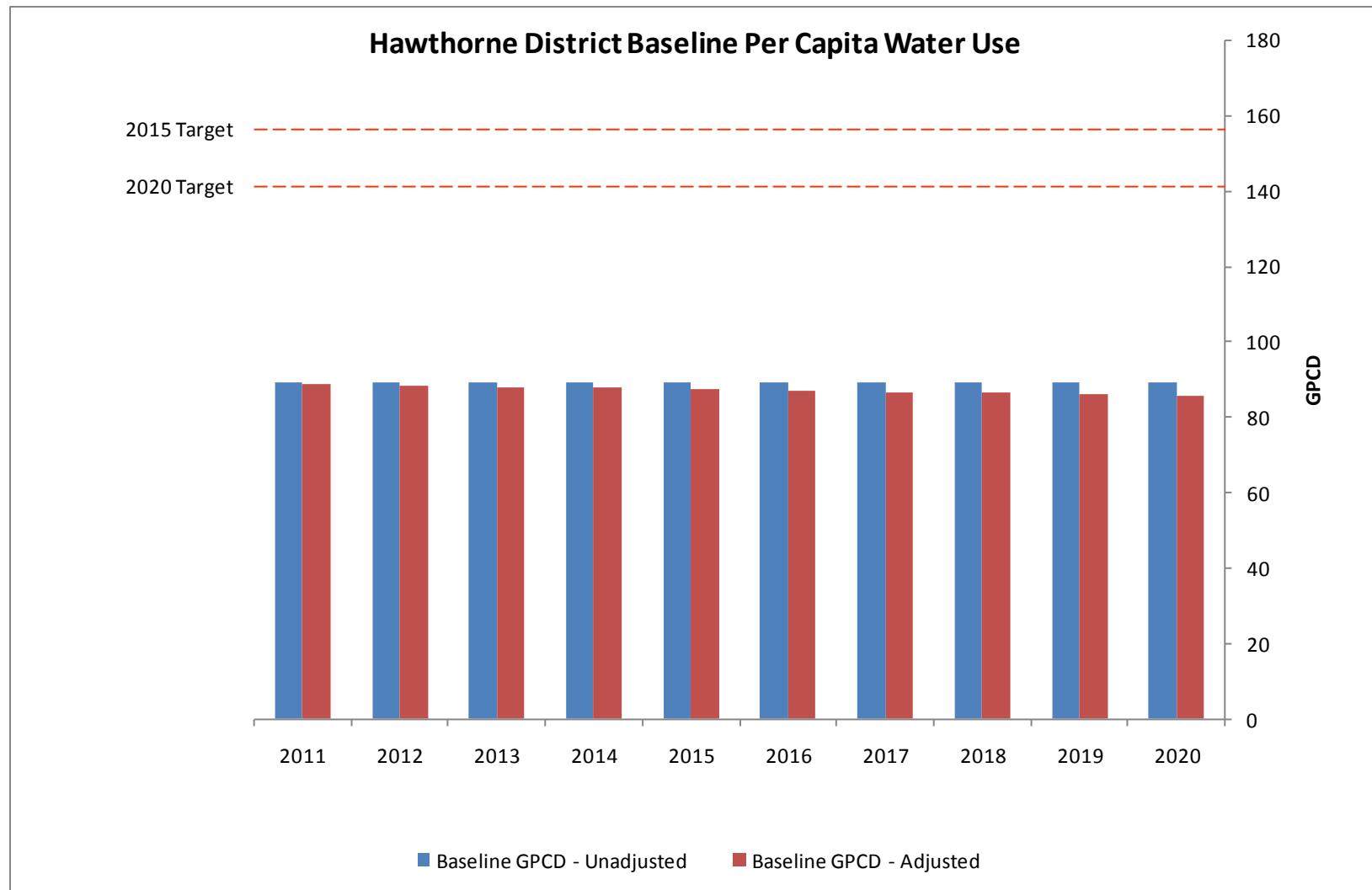
<sup>2</sup> Attachment 2 provides the estimated water savings from plumbing codes for Hawthorne District.

**Table 4. Hawthorne District Baseline Per Capita Daily Water Use**

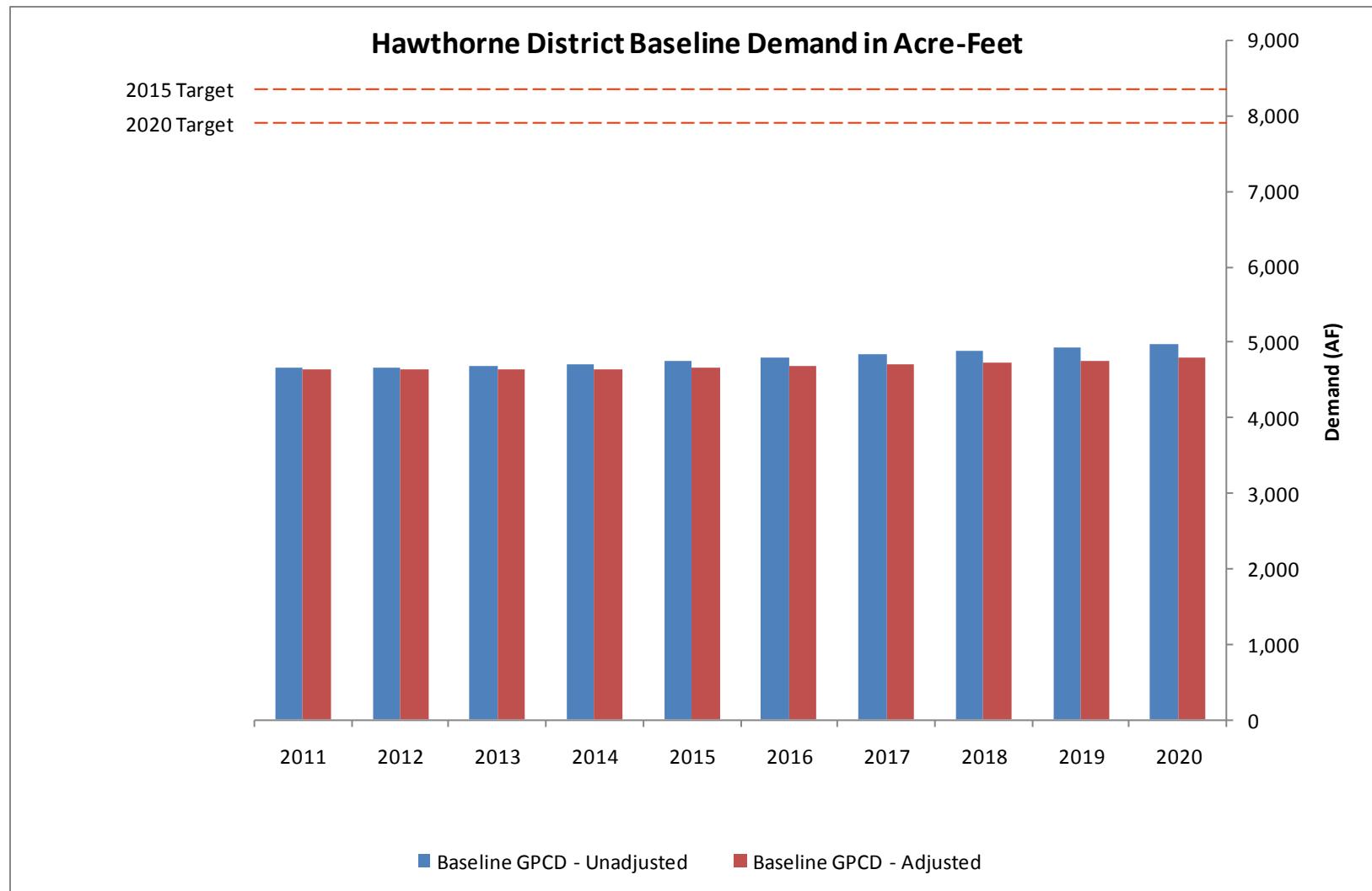
Year	Service Area Population	Unadjusted Baseline Per Capita Water Use	Adjusted Baseline Per Capita Water Use
2011	46,719	89.1	88.7
2012	46,826	89.1	88.4
2013	47,015	89.1	88.1
2014	47,288	89.1	87.8
2015	47,644	89.1	87.4
2016	48,084	89.1	87.1
2017	48,524	89.1	86.7
2018	48,966	89.1	86.4
2019	49,409	89.1	86.0
2020	49,852	89.1	85.7

**Table 5. Hawthorne District Baseline Demand in Acre-Feet**

Year	Service Area Population	Unadjusted Baseline Per Capita Water Use	Adjusted Baseline Per Capita Water Use
2011	46,719	4,662	4,642
2012	46,826	4,672	4,637
2013	47,015	4,691	4,640
2014	47,288	4,718	4,651
2015	47,644	4,754	4,666
2016	48,084	4,798	4,689
2017	48,524	4,842	4,712
2018	48,966	4,886	4,737
2019	49,409	4,930	4,762
2020	49,852	4,974	4,788



**Figure 1**



**Figure 2**

**Attachment 1****Input and Output Worksheets from the *Provisional Method 4 Target Calculator***

User Input -- Provisional Method 4 Target																	
1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
3	Target Calculation Option (select one): * <input type="button" value="Calculate Targets Using Default Indoor Residential Savings"/>												*=Required Data				
5	Water Supplier Name: * <input type="text" value="Hawthorne District, CWS"/>																
8	10-15 Year Baseline Water Use Information																
10	Baseline Period: * <input type="button" value="1997-2006"/>				Midpoint of Baseline Period: <input type="text" value="2001"/>												
12	Baseline Water Use GPCD: * <input type="text" value="97.5"/>				Population in Midpoint Year: <input type="text" value="46,217"/>												
14	5 Year Baseline Water Use Information																
16	Baseline Period: * <input type="button" value="2003-2007"/>																
18	Baseline Water Use GPCD: * <input type="text" value="93.8"/>				95% of 5-Year Baseline GPCD: <input type="text" value="89.1"/>												
21	Unmetered Connections																
23	Number of Unmetered Connections in 2001: * <input type="text" value="0"/>																
25	Water Use By Unmetered Connections In 2001: * <input type="text" value="0 Acre-Feet"/>																
28	Baseline CII Water Use <sup>1</sup>																
30	CII Water Use in 2001: * <input type="text" value="722 Acre-Feet"/>																
32	Per Capita Use: <input type="text" value="13.9 GPCD"/>																
34	<sup>1</sup> CII = Commercial, Industrial, Institutional.																
37	If you have chosen to calculate targets using the Default Indoor Residential Savings, you do not need to complete the remaining tables. Go to the "Calculated Targets" worksheet.																
39	<input type="button" value="READ ME"/>	<input type="button" value="User Input"/>	<input type="button" value="Calculated Targets"/>	<input type="button" value="BMP 1.3 Metering"/>	<input type="button" value="BMP 2.0"/>	<input type="button" value="Single Family Toilets"/>	<input type="button" value="Multi Family Toilets"/>	<input type="button" value="Faucets"/>	<input type="button" value="Leaky Toilets"/>	<input type="button" value="Leaky Fixtures"/>	<input type="button" value="Washing Machines"/>	<input type="button" value="Washing Detergent"/>	<input type="button" value="Drinking Water"/>	<input type="button" value="Irrigation"/>	<input type="button" value="Pools"/>	<input type="button" value="Fountains"/>	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	<b>Target Calculation -- Provisional Method 4 Target</b>																
2	<b>Step 1. Calculation of Landscape Water Use and System Water Loss</b>																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14	<b>Step 2. Calculation of Savings Using BMP Calculators      (Alternate) STEP 2 BEING USED TO CALCULATE TARGET</b>																
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25	<b>(Alternate) Step 2. Calculation of Savings Using Default Indoor Residential Savings</b>																
26																	
27																	
28																	
29																	
30																	
31																	
32																	
33																	
34																	
35	<b>Step 3. Calculation of Urban Water Use Targets</b>																
36																	
37																	
38																	
39																	
40																	
41																	
42																	
43																	
44																	
	READ ME	User Input	Calculated Targets	BMP 1.3 Metering	BMP 4 CII	Single Family Toilets	Multi Fam										

**Attachment 2****Hawthorne District Plumbing Code Savings Projection****Single Family Toilets**

Year	Total Toilets	Non			Avg Flush Vol.	2010		
		ULFT	ULFT	HET		Baseline Use* (AF)	Projected Use (AF)	Projected Savings (AF)
2010	8,745	3,958	4,787	0	2.57	334	334	0
2011	8,818	3,800	5,018	0	2.53	337	331	6
2012	8,829	3,648	5,181	0	2.49	338	326	11
2013	8,855	3,502	5,354	0	2.45	339	323	16
2014	8,898	3,362	5,536	0	2.41	340	319	21
2015	8,955	3,227	5,314	414	2.36	343	314	28
2016	9,029	3,098	5,102	829	2.31	345	310	36
2017	9,102	2,974	4,898	1,230	2.26	348	306	42
2018	9,176	2,855	4,702	1,619	2.21	351	302	49
2019	9,249	2,741	4,514	1,994	2.17	354	298	56
2020	9,323	2,631	4,333	2,358	2.13	357	295	62

\*Baseline use is based on the average flush volume in 2010. Projected use is based on the average flush volume in each year.

**Multi Family Toilets**

Year	Total Toilets	Non			Avg Flush Vol.	2010		
		ULFT	ULFT	HET		Baseline Use* (AF)	Projected Use (AF)	Projected Savings (AF)
2010	10,042	4,546	5,496	0	2.57	399	399	0
2011	10,143	4,364	5,780	0	2.52	403	396	8
2012	10,173	4,189	5,984	0	2.49	405	391	14
2013	10,220	4,022	6,199	0	2.45	407	387	20
2014	10,286	3,861	6,425	0	2.41	409	383	26
2015	10,370	3,706	6,168	495	2.35	413	377	35
2016	10,472	3,558	5,921	992	2.30	417	373	44
2017	10,574	3,416	5,684	1,474	2.25	421	368	53
2018	10,677	3,279	5,457	1,941	2.20	425	364	61
2019	10,780	3,148	5,239	2,393	2.16	429	360	69
2020	10,883	3,022	5,029	2,832	2.11	433	356	77

\*Baseline use is based on the average flush volume in 2010. Projected use is based on the average flush volume in each year.

**CII Toilets**

Year	Total	Non	ULFT	ULFT	HET	Avg	2010		Projected Savings (AF)
	Toilets	ULFT				Flush Vol.	Baseline Use* (AF)	Projected Use (AF)	
2010	4,152	1,458	2,694	0	2.35	137	137	137	0
2011	4,185	1,399	2,786	0	2.32	138	138	136	2
2012	4,191	1,343	2,848	0	2.29	138	138	134	4
2013	4,203	1,290	2,913	0	2.26	138	138	133	6
2014	4,223	1,238	2,985	0	2.23	139	139	132	7
2015	4,249	1,188	2,866	195	2.19	140	140	130	10
2016	4,283	1,141	2,751	391	2.14	141	141	128	13
2017	4,316	1,095	2,641	580	2.10	142	142	127	15
2018	4,350	1,051	2,535	763	2.06	143	143	125	18
2019	4,384	1,009	2,434	941	2.03	144	144	124	20
2020	4,417	969	2,337	1,111	1.99	145	145	123	22

\*Baseline use is based on the average flush volume in 2010. Projected use is based on the average flush volume in each year.

**Single Family Showerheads**

Year	Total	Non	Low Flow	Low Flow	Avg	2010		Projected Savings (AF)
	Showerheads	Low			GPCD	Baseline Use* (AF)	Projected Use (AF)	
2010	7,433	1,053	6,380	6,380	9.44	223	223	0
2011	7,495	948	6,547	6,547	9.37	225	223	2
2012	7,504	853	6,652	6,652	9.31	225	222	3
2013	7,527	768	6,760	6,760	9.26	226	222	4
2014	7,563	691	6,872	6,872	9.21	227	222	5
2015	7,612	622	6,990	6,990	9.17	228	222	7
2016	7,675	560	7,115	7,115	9.13	230	223	8
2017	7,737	504	7,233	7,233	9.09	232	224	8
2018	7,799	453	7,346	7,346	9.06	234	225	9
2019	7,862	408	7,454	7,454	9.03	236	226	10
2020	7,924	367	7,557	7,557	9.01	238	227	11

\*Baseline use is based on the average flow rate in 2010. Projected use is based on the average flow rate in each year.

**Multi Family Showerheads**

Year	Total Showerheads	2010					
		Non Flow	Low Flow	Avg GPCD	Baseline Use* (AF)	Projected Use (AF)	Projected Savings (AF)
2010	7,933	1,124	6,809	9.44	266	266	0
2011	8,013	1,011	7,002	9.37	269	267	2
2012	8,036	910	7,126	9.31	270	266	4
2013	8,074	819	7,255	9.26	271	266	5
2014	8,126	737	7,388	9.21	273	266	7
2015	8,192	664	7,528	9.16	275	267	8
2016	8,273	597	7,675	9.12	278	269	9
2017	8,354	538	7,816	9.09	281	270	10
2018	8,435	484	7,951	9.06	283	272	11
2019	8,516	435	8,081	9.03	286	274	12
2020	8,598	392	8,206	9.01	289	276	13

\*Baseline use is based on the average flow rate in 2010. Projected use is based on the average flow rate in each year.